



U.S. Department
of Transportation
**Federal Aviation
Administration**

Aviation Safety

800 Independence Ave
Washington, DC 20591

September 17, 2021

Exemption No. 18325A
Regulatory Docket No. FAA-2019-0146

Mr. Brad Anderson
Unmanned Systems Division Manager
Yamaha Motor Corporation, U.S.A.
6555 Katella Ave.
Cypress, CA 90630

Dear Mr. Anderson:

This letter is to inform you that the Federal Aviation Administration (FAA) has granted your petition to extend Exemption No. 18325. This letter transmits the FAA's decision, explains the FAA's basis, and provides the conditions and limitations of the exemption, including the date the exemption ends.

The Basis for the FAA's Decision

By letter dated May 4, 2021, you petitioned the FAA on behalf of Yamaha Motor Corporation, U.S.A. (Yamaha) for an extension of Exemption No. 18325. That exemption from §§ 61.3(a)(1)(i), 91.7(a), 91.119(c), 91.121, 91.151(b), 91.405(a), 91.407(a)(1), 91.409(a)(1) and (2), 91.417(a) and (b), 137.19(c) and (d), 137.19(e)(2)(ii), (iii) and (v), 137.31(a) and (b), 137.33(a) and (b), 137.41(c), and 137.42 of Title 14, Code of Federal Regulations (14 CFR) allows Yamaha to conduct commercial agricultural-related services; research and development (R&D); and to show compliance.

In your petition, you indicate that there has been no change in the conditions and reasons relative to public interest and safety that were the basis for granting the original exemption.

The FAZER R UAS does not currently have an airworthiness certificate. Title 49 U.S.C. § 44807 provides the Secretary of Transportation (Secretary) with authority to determine whether a certificate of waiver, certificate of authorization, or a certificate under Section 44703 or Section 44704, is required for the operation of certain UAS. Section 44807(b) instructs the Secretary to base this determination on which types of UAS do not create a hazard to users of the National Airspace System (NAS) or the public. In making this determination, the Secretary must consider the size, weight, speed, operational capability of the UAS, and other aspects of the proposed operation. In accordance with the statutory criteria provided in 49 U.S.C. § 44807, and in consideration of the size, weight, speed, and operational capability, proximity to airports and

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populated areas, and specific operations, the Secretary has determined this aircraft does not create a hazard to users of the NAS or the public.

The FAA's Decision

The FAA has determined that good cause exists for not publishing a summary of the petition in the *Federal Register*. The FAA has determined that good cause exists because the requested extension of the exemption would not set a precedent and any delay in acting on this petition would be detrimental to Yamaha.

Additionally, the FAA has revised the condition and limitations from Exemption No. 18325 as follows:

- Condition and Limitation No. 3 was edited to address the FAA's concern for groundspeed, not airspeed as most UAS controllers indicate groundspeed (using GPS), not airspeed.
- Condition and Limitation No. 28 was added to clarify requirements to not operate within 5 nautical miles of an airport.

The FAA has determined that the justification for the issuance of Exemption No. 18325 remains valid with respect to this exemption and is in the public interest. Therefore, under the authority provided by 49 U.S.C. §§ 106(f), 40113, 44701, and 44807, which the FAA Administrator has delegated to me, I hereby grant Yamaha Motor Corporation, U.S.A. an exemption from 14 CFR §§ 61.3(a)(1)(i), 91.7(a), 91.119(c), 91.121, 91.151(b), 91.405(a), 91.407(a)(1), 91.409(a)(1) and (2), 91.417(a) and (b), 137.19(c) and (d), 137.19(e)(2)(ii), (iii) and (v), 137.31(a) and (b), 137.33(a) and (b), 137.41(c), and 137.42 to the extent necessary to allow Yamaha to operate UAS weighing 55 lbs. or more to conduct commercial agricultural-related services; research and development (R&D); and to show compliance, subject to the following conditions and limitations described below.

Conditions and Limitations

In this grant of exemption, Yamaha Motor Corporation, U.S.A. is hereinafter referred to as "the Operator" or "Exemption Holder."

A copy of the 49 U.S.C. § 44807 Certificate of Waiver or Authorization (COA) is enclosed with this exemption, and must be accessible during all UAS operations that occur under this exemption and made available to the Administrator upon request.

1. Operations authorized by this grant of exemption include the FAZER R as described in the operating documents with a maximum individual take-off weight not to exceed 244 pounds, and are limited to agricultural aircraft operations; R&D; and to show compliance. Additionally, the FAZER R aircraft must be listed on the Operator's Part 137 Letter of Authorization (LOA) prior to use in any Part 137 operation.
2. This exemption does not excuse the Operator from complying with 14 CFR Part 375. If operations under this exemption involve the use of foreign civil aircraft, the Operator must

obtain a Foreign Aircraft Permit pursuant to 14 CFR § 375.41 before conducting any operations under this exemption. Application instructions are specified in 14 CFR § 375.43.

3. The FAZER R UAS described in this exemption may not be operated at a groundspeed exceeding 30 miles per hour or at any speed greater than the maximum operating speed recommended by the aircraft manufacturer, whichever is lower.
4. All operations must be conducted in accordance with an Air Traffic Organization (ATO)-issued COA. The Exemption Holder must apply for a new or amended COA if it intends to conduct operations that cannot be conducted under the terms of the COA. If a conflict exists between the COA and this condition, the more restrictive provision will apply. The COA will also require the Operator to request a Notice to Airmen (NOTAM) not more than 72 hours in advance, but not less than 48 hours prior to each operation. Unless the COA or other subsequently issued FAA authorization specifies an altitude restriction lower than 200 feet above ground level (AGL), operations under this exemption may not exceed 200 feet AGL. Altitude must be reported in feet AGL.
5. The pilot in command (PIC) must be designated before the flight and cannot transfer his or her designation for the duration of the flight. In all situations, the PIC is responsible for the safety of the operation. The PIC is also responsible for meeting all applicable conditions and limitations as prescribed in this exemption and ATO-issued COA, and operating in accordance with the operating documents. The aircraft must be operated within visual line of sight (VLOS) of the PIC at all times. The PIC must be able to use human vision unaided by any device other than corrective lenses, as specified on the PIC's FAA-issued airman medical certificate.
6. The PIC may manipulate flight controls in the operation of no more than one unmanned aircraft at the same time. Proposed operation of more than one unmanned aircraft at the same time (by one PIC) requires a new petition or a petition to amend this exemption.
7. All operations must utilize the services of at least one or more visual observers (VO). The VO must be trained in accordance with the Operator's training program. For purposes of this condition, a VO is someone: (1) who maintains effective communication with the PIC at all times; (2) who the PIC ensures is able to see the unmanned aircraft with human vision as described in condition and limitation No. 5; and (3) coordinates with the PIC to scan the airspace where the unmanned aircraft (UA) is operating for any potential collision hazard and maintain awareness of the position of the UA through direct visual observation. The aircraft must be operated within VLOS of both the PIC and VO at all times. The operation must be conducted with a dedicated VO who has no collateral duties and is not the PIC during the flight. The VO may be used to satisfy the VLOS requirement as long as the PIC always maintains VLOS capability. The VO and PIC must be able to communicate verbally at all times; electronic messaging or texting is not permitted during flight operations. The VO must maintain visual sight of the aircraft at all times during flight operations without distraction. The PIC must ensure that the VO can perform the duties required of the VO. If either the PIC or a VO is unable to maintain VLOS with the UA during flight, the entire flight operation must be terminated as soon as practicable.

8. This exemption, and all documents needed to operate the UAS and conduct its operations in accordance with the conditions and limitations stated in this grant of exemption, are hereinafter referred to as the operating documents. Yamaha Motor Corporation, U.S.A. Operations and Procedures Manual, Firmware Update Procedures, Emergency Procedures, Manufacturer's Manual for the FAZER R, Maintenance Procedures Manual, all Preflight Checklists, and this exemption and any ATO-issued COA that applies to operations under this exemption must be accessible during all UAS operations that occur under this exemption and made available to the Administrator upon request. If a discrepancy exists between the conditions and limitations in this exemption and the procedures outlined in the operating documents, the conditions and limitations herein take precedence and must be followed. Otherwise, the Operator must follow the procedures as outlined in its operating documents. The Operator may update or revise its operating documents. It is the Operator's responsibility to track such revisions and present updated and revised documents¹ to the Administrator or any law enforcement official upon request. The Operator must also present the most current documents if it petitions for extension of or amendment to this grant of exemption. If the Operator determines that any update or revision would affect the Operator's ability to comply with any requirement of this exemption, then the Operator must petition for an amendment to its grant of exemption. If questions arise regarding updates or revisions to the operating documents, the Operator may contact the Flight Standards Service General Aviation and Commercial Division (AFS-800), 800 Independence Ave. SW, Washington, DC 20591. Telephone: 202-267-1100, Email: 9-AFS-800-Correspondence@faa.gov.
9. Any aircraft that has undergone maintenance or alterations that affect the UAS operation or flight characteristics (e.g., replacement of a flight-critical component) must undergo a functional test flight prior to conducting further operations under this exemption. Functional test flights may only be conducted by a PIC with a VO and other personnel required to conduct the functional flight test (such as a mechanic or technician) and must remain at least 500 feet from other people. The functional test flight must be conducted in such a manner so as to not pose an undue hazard to persons and property.
10. The Operator is responsible for maintaining and inspecting all aircraft to be used in the operation and ensuring that they are all in a condition for safe operation.
11. Prior to each flight, the PIC must conduct a pre-flight inspection and determine the aircraft is in a condition for safe flight. The pre-flight inspection must account for all potential discrepancies, such as inoperable components, items, or equipment. If the inspection reveals a condition that affects the safe operation of the UAS, the aircraft is prohibited from operating until the necessary maintenance has been performed, and the aircraft is found to be in a condition for safe flight.
12. The Operator must follow the UAS manufacturer's maintenance, overhaul, replacement, inspection, safety bulletins, and life-limit requirements for the aircraft and aircraft components.

¹ Updated documents should be sent to the FAA General Aviation and Commercial Division (AFS-800).

13. PIC certification: Under this exemption, a PIC must hold a current remote pilot certificate.
14. The PIC must also hold at least a current FAA second-class airman medical certificate. The PIC may not conduct the operation if he or she knows or has reason to know of any medical condition that would make him or her unable to meet the requirements for at least a second-class medical certificate, or is taking medication or receiving treatment for a medical condition that results in the PIC being unable to meet the requirements for at least a second-class medical certificate. The VO or any other direct participant may not participate in the operation if he or she knows or has reason to know of any physical or mental condition that would interfere with the safe operation of the aircraft.
15. The PIC must demonstrate the ability to safely operate the UAS in a manner consistent with how it will be operated under this exemption. The PIC must demonstrate the applicable knowledge and skills requirements for agricultural aircraft operations outlined in 14 CFR Part 137, evasive and emergency maneuvers, and maintaining appropriate distances from persons, vessels, vehicles and structures before operating non-training, proficiency, or experience-building flights under this exemption. Additionally, all PICs must satisfactorily complete the Operator's training program requirements, the completion of which must be documented. Furthermore, the PIC must satisfactorily demonstrate his or her ability to respond appropriately to a lost-link occurrence as part of the knowledge and skill assessment that will occur in accordance with Section 137.19(e). PIC qualification flight hours and currency may be logged in a manner consistent with 14 CFR § 61.51(b). However, time logged for UAS operations may not be recorded in the same columns or categories as time accrued during manned flight, and UAS flight time does not count toward total flight time required for any Part 61 requirement.
16. All training operations must be conducted during dedicated training sessions and may not be conducted for compensation or hire. Furthermore, the PIC must operate the UA not closer than 500 feet to any nonparticipating person while conducting training operations.
17. UAS operations may not be conducted during night, as defined in 14 CFR § 1.1. All operations must be conducted under visual meteorological conditions (VMC). Operations may not be conducted under special visual flight rules (SVFR).
18. The aircraft may not be operated less than 500 feet below or less than 2,000 feet horizontally from a cloud or when visibility is less than 3 statute miles from the PIC.
19. For UAS operations where global positioning system (GPS) signal is necessary to safely operate the aircraft, the PIC must immediately recover/land the UA upon loss of GPS signal.
20. If the PIC loses command or control link, the aircraft must follow a pre-determined route to either reestablish link or immediately recover or land.
21. The PIC must abort the flight operation if unexpected circumstances or emergencies arise that could degrade the safety of persons or property. The PIC must terminate flight operations without causing undue hazard to persons or property in the air or on the ground.

22. The PIC is prohibited from beginning a flight unless (considering wind and forecast weather conditions) there is enough available power for each aircraft involved in the operation to conduct the intended operation with sufficient reserve such that in the event of an emergency, the PIC can land the aircraft in a known area without posing an undue risk to aircraft or people and property on the ground. In the alternative, if the manufacturer's manual, specifications, or other documents that apply to operation of the FAZER R recommend a specific volume of reserve power, the PIC must adhere to the manufacturer's recommendation, as long as it allows the aircraft to conduct the operation with sufficient reserve and maintain power to land the aircraft in a known area without presenting undue risks, should an emergency arise.
23. This exemption does not grant relief from the requirements concerning registration and marking of aircraft. All aircraft operated in accordance with this exemption must be identified by serial number, registered in accordance with 14 CFR Part 47, and have identification (N-Number) markings in accordance with 14 CFR Part 45, Subpart C. Markings must be as large as practicable.
24. Documents used by the Operator to ensure the safe operation and flight of the UAS and any documents required under 14 CFR §§ 91.9, 91.203, and 137.33 must be available to the PIC at the ground control station of the UAS any time any aircraft operates in accordance with this exemption. These documents must be made available to the Administrator or any law enforcement official upon request.
25. The UA must remain clear and give way to all manned aviation operations and activities at all times.
26. The UAS may not be operated by the PIC from any moving device or vehicle.
27. All flight operations must be conducted at least 500 feet from all persons who are not directly participating in the operation, and from vessels, vehicles, and structures, unless when operating:
 - a. *Over or near people directly participating in the operation of the UAS.* No person may operate the UAS directly over a human being unless that human being is directly participating in the operation of the UAS, to include the PIC, VO, and other personnel who are directly participating in the safe operation of the UA.
 - b. *Near nonparticipating persons.* Except as provided in subsection (a) of this section, a UA may only be operated closer than 500 feet to a person when barriers or structures are present that sufficiently protect that person from the UA and/or debris or hazardous materials such as fuel or chemicals in the event of an accident. Under these conditions, the Operator must ensure that the person remains under such protection for the duration of the operation. If a situation arises in which the person leaves such protection and is within 500 feet of the UA, flight operations must cease immediately in a manner that does not cause undue

hazard to persons.

- c. *Near vessels, vehicles and structures.* Prior to conducting operations, the Operator must obtain permission from a person with the legal authority over any vessels, vehicles or structures that will be within 500 feet of the UA during operations. The PIC must make a safety assessment of the risk of operating closer to those objects and determine that it does not present an undue hazard.

28. The UA may not operate within 5 nautical miles of an airport reference point (ARP) as denoted in the current FAA Chart Supplement or, for airports not denoted with an ARP, the center of the airport symbol as denoted on the current FAA published aeronautical chart, unless a letter of agreement with that airport's management is obtained or otherwise permitted by a COA issued to the Exemption Holder. The letter of agreement with the airport management must be made available to the Administrator or any law enforcement official upon request.
29. All operations shall be conducted from and over predetermined, uninhabited, segregated, private or controlled-access property as described in the Operator's Flight Operations Procedures Manual. The PIC must ensure the entire operational area will be controlled² to reduce risk to persons and property on the ground, as well as other users of the NAS. This area of operation will include a defined lateral and vertical area where the aircraft will operate and must be geo-fenced to prevent any lateral and vertical excursions by the operating aircraft. Safety procedures must be established for persons, property and applicable airspace within the area of operation. A briefing must be conducted regarding the planned UAS operations prior to operation at each location of operation in which the Operator has not previously conducted agricultural aircraft operations. All personnel who will be performing duties within the boundaries of the area of operation must be present for this briefing. Additionally, all operations conducted under this exemption may only occur in areas of operation that have been physically examined by Yamaha prior to conducting agricultural aircraft operations and in accordance with the associated COA.
30. Any incident, accident, or flight operation that transgresses the lateral or vertical boundaries of the operational area as defined by the applicable COA must be reported within 24 hours as required by the applicable COA issued by the FAA Air Traffic Organization. Additionally, any incident or accident that occurs, or any flight operation that transgresses the lateral or vertical boundaries of the operational work area, must be reported to the Flight Standards District Office (FSDO) that holds the Operator's Part 137 certificate.

Failure to comply with any of the above conditions and limitations may result in the immediate suspension or rescission of this exemption.

Unless otherwise specified in this grant of exemption, the UAS, PIC, and operator must comply with all applicable parts of 14 CFR including, but not limited to, Parts 45, 47, 91, and 137. In addition, the Operator must comply with all limitations and provisions of Operator's agricultural

² The Operator will control access to minimize hazards to persons and property in the air and on the ground.

aircraft operator certificate, which the Operator must obtain prior to conducting agricultural operations in accordance with 14 CFR § 137.11.

The Effect of the FAA's Decision

The FAA's decision amends Exemption No. 18325 to 18325A and extends the termination date to September 30, 2023, unless sooner superseded or rescinded.

To request an extension or amendment to this exemption, please submit your request by using the Regulatory Docket No. FAA-2019-0146 (<http://www.regulations.gov>). In addition, you should submit your request for extension or amendment no later than 120 days prior to the expiration listed above, or the date you need the amendment, respectively.

Any extension or amendment request must meet the requirements of 14 CFR § 11.81.

Sincerely,

/s/

Robert C. Carty
Deputy Executive Director, Flight Standards Service